SEPTEMBER, MDCCCLVIII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CXCIV.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

Mr. Gregson read the following

Notes on the Genus Oporabia.

"In a late number of the 'Zoologist' (Zool. 6103) my esteemed friend Mr. Doubleday differs from me about Oporabia filigrammaria and O. autumnaria (*D. L.*) being distinct species, and says he thinks Guenée correct when he unites these two species under the name of O. filigrammaria. It is with great reluctance that I venture to say I am at issue with these two profound naturalists, and, under ordinary circumstances, I should at once give way to the opinion of such men; but in the present case, believing that they have founded their opinion upon superficial observation of the perfect insects, whilst I form mine upon early stages and well-known economy of these species, I am compelled, much against my will, to protest against this desire to cut down species upon insufficient or imaginary grounds. The evidence which Mr. Doubleday brings to corroborate his opinion goes for nothing, because Mr. Edleston, the gentleman to whom he refers, does not know the species we take as O. autumnaria, the specimen in his cabinet under that name being most unquestionably a large example of O. dilutaria. To coincide with clever men is generally a safe game, but the best err sometimes, and I think this is an instance. If I am in error I shall be glad to admit and correct it when I find it out, or when it is shown to me; but I do not feel warranted in giving way because men who have had less opportunity than I have had to observe the habits of these two particular species differ from me, even though they be, as they unquestionably are, infinitely my superiors in entomological knowledge: there is a certain amount of self-respect which says do not always yield; form an opinion of your own, and act upon it; respect for our friends ought not to degenerate into servitude; and I feel sure both Mr. Doubleday and M. Guenée will excuse my differing from them, when I say that I have had the eggs and young larvæ of O. filigrammaria from Wharmton, near Oldham, and from the brushes near Staly Bridge, and have also taken the species on Moel Varna in North Wales, always in situations where heath and Vaccinium grow on mountains, and have never met with it on low ground. It is a common species, and may be found by separating the tufts of heath, and looking closely at the thickest stems, where it is difficult to see; none but a practised eye would suspect the small protuberance on the stem to be a moth. It appears in August and early in September, and comes out of pupa from 4 to 6 P.M., and where there are fir trees, as at Wharmton, it may be found *in copulâ* upon them about 5 P.M. I never found it *in copulâ* upon heath. My friend J. B. Hodgkinson takes it upon the highest parts of Longridge, near Preston; Mr. Garlick, of Leeds, who has taken great numbers of this species, says always high up. Mr. Almond also found it on the mountains. Mr. Hague has taken it in numbers, and the Bolton collectors take it on the moors, preferring the highest walls they can find, for though they may find a single specimen on the lower walls, as is sometimes done going up to the brushes, this seems only just to prove the rule. Weaver took all his filigrammaria on the mountains. Thus filigrammaria is always a mountain insect. I have a great objection to attempt to describe larvæ from memory, and shall therefore let this part of the subject stand over. The insect we take at Delamere Forest and elsewhere as O. autumnaria of Doubleday's List is a wood insect, and has been bred by Mr. Greening from larvæ found upon oak; it is a much larger insect, and always appears late in September and October, with O. dilutaria, and I have often taken it during the two first weeks in November. The elongate form of the under

BRITISH MUSEUM

wings in O. filigrammaria is a permanent distinctive character in the male, whilst the female cannot be confounded with the female of the October insect. The size of the insects, a point on which our friends seem to lay great stress, is of little moment, because the Petty Pool specimens, more south than so-called Manchester specimens, are quite as large as the Rannoch specimens, and generally much darker. I have often been asked, 'How do you separate autumnaria from dilutaria, as you take them together?' and I think the distinctive characters may well be remarked upon here: first, the antennæ in autumnaria are much finer, the insect is more silvery, and the marginal band on the under wings is not parallel with the cilia, as it always is in dilutaria, but cuts across the elongated point of the wing, and is consequently broader at this part; this character is better defined in some specimens than in others, and applies with still more force in filigrammaria, in consequence of the greater elongation of the under wing.

"I do not care to enter into the question of another species in this genus, further than to ask to be permitted to think we have one, as I shall be quite willing to let those friends who have never seen it think we have not one; but I may call your attention to Mr. Weaver's note (Zool. 3495) on the genus Oporabia, and mention that he made a journey from Birmingham to Liverpool purposely to see my specimens, and unhesitatingly pronounced them a distinct species. It may be said Weaver had an object in multiplying species, but it is uncharitable to say so of him; for my part I would rather take his opinion, founded as it was on practical and close observations of the insect; where it appears, how it sits, how it flies, when it disappears, &c., go for something, even when we do not know its food-plant; but we know it to feed upon a tree, whilst the species to which it is allied occurs frequently where no trees are, and at other times where fir alone will grow, as at Moel Varna.

"I fear I have extended my remarks over too great a space, but I think I should not do justice to this question if I did not give the opinions of other practical entomologists, and shall select extracts from a letter kindly furnished by Mr. Garlick, merely observing that Wharmton is always a cold, late district; rising as it does on the moors, it has not the protection from the winds which the adjoining hills of the 'brushes' range have, and consequently such hills as Highrige are always two weeks earlier there. I have found filigrammaria wasted on the 12th of August, rather a particular day to sportsmen in this district.

"Mr. Garlick says, on the 16th of August, 1855:—'I took two good specimens of filigrammaria, just out, on a fence wall. This is the earliest date that ever I met with them. I took 120 specimens, in fine condition, from then to the 4th of September; this I should say is the height of the season for them here, but I did not see a specimen of any sort after the 14th of September.'

"August 24, 1856.—'Had been on the look out for them two weeks. Took three specimens, just out, on the walls, and two on the trunks of fir trees. This year their height was from the 1st to the 6th of September; on the 15th they had dispersed.'

"August 19, 1857.—'Found filigrammaria, just out; it was in fine condition on the 26th and 27th, but on the 10th of September it had gone to "Davy," and I could not find one afterwards.'

"When we allow for the coolness of this district, as compared with the sheltered localities I and others have taken it in, we shall find that these dates coincide with what might naturally be expected. Being desirous of laying the facts before you, and having no other object in view, I leave you to draw your own conclusions as to whether the small August insect known in the northern cabinets as filigrammaria, and the large October insect known as autumnaria of Doubleday's List, are one and the same species ; I say not."*

After which a few remarks were made upon the question, the Meeting being of opinion that O. autumnaria of Doubleday's Catalogue and O. filigrammaria are two distinct species ; it was observed that O. autumnaria might be a variety of O. dilutaria, but could not be admitted as a variety of filigrammaria. On the distinctions between O. autumnaria and O. dilutaria being pointed out, the Meeting proceeded to render the thanks due to the various friends and members, who, by their kindness, had contributed to the pleasure and instruction of the members and friends present, particularly to Mr. Battersby, for his liberal offer to give specimens of luctuosa to those who were still in want of them.—*C. S. G.*

ZOOLOGICAL SOCIETY.

Tuesday, *July* 13, 1858.—DR. GRAY, V.P., in the chair.

Mr. Gould read a paper on a new species of ptarmigan, the skin of which he exhibited to the Meeting. It was a native of Spitzbergen, where he believed it was plentiful, and was brought to this country by Edward Evans, Esq., of Neath, who shot it during a visit to that part of the world in the summer of 1856. In size it considerably exceeded our common ptarmigan. Mr. Gould proposed the name of Lagopus hemileucurus for this species.

Mr. Gould also read a paper containing descriptions of two new species of the family Hirundinidæ; one, an Atticora, from Guatemala, for the introduction of which Science was indebted to George Ure Skinner, Esq., he characterized under the name of Atticora pileata ; the other, a Chelidon, from Cashmere, which he proposed to call Chelidon Cashmeriensis, was discovered by Dr. A. Leith Adams, of the 22nd regt.

Mr. Sclater exhibited a specimen of an apparently undescribed species of Buteo from the collection of the Norwich Museum, which he proposed to characterize as Buteo fuliginosus.

Mr. Sclater also called the attention of the Society to some birds collected by George Cavendish Taylor, Esq., during his journey across the Republic of Honduras,

---

* I am always pleased to find a question of this kind investigated on the spot: it is the only way in which such *questiones vexatæ* can be settled. I would nevertheless suggest to Mr. Gregson certain queries which still remain open. What is the difference between the larvæ of the three species? Calling them A, B and C, may I ask this question,—When the eggs of A are reared to the imago state, do the moths *always* prove identical with A? The same of B? The same of C? Has it been positively ascertained that the food plants of A, B and C are different? Mr. Gregson hints this, but has not established it. Is it certain that neither A, B nor C is a second brood of either of the others? May not autumnaria be a second brood of filigrammaria; filigrammaria is wasted on the 12th August, autumnaria in perfection in October. Mr. Gregson has the opportunity of solving these questions: it would be a boon to Science if he would do so, and would supersede the necessity for expressing mere opinions.—*Edward Newman.*

along the line of the proposed Inter-Oceanic Railway, and read a list of the species procured, thirty-nine in number, accompanied by remarks on their synonymy and distribution.

Mr. S. P. Woodward read a paper on the genus Synapta, by himself and Mr. L. Barrett. Two species of Synapta (marine animals remarkable for the microscopic anchors in the skin) are found on the British coast. 1. S. digitata, *Mont.*, ranging from Scotland to the Mediterranean, occurs in Rothsay Bay, west coast of Ireland, Devonshire, Cornwall, also in Vigo Bay (Galicia), and Trieste (Adriatic). 2. S. inhærens, *Mull.*, which ranges from Norway to Brittany, has been found at Aberystwith, Criccieth, Falmouth, and Bantry Bay. A new species, called Synapta bidentata, was described as having bifid anchor-flukes, and oval plates perforated by many circular holes, decreasing in size from the centre to the circumference. The specimens were collected in China, by the Rev. G. Vachell, and are three inches long, with twelve tentacles, each having four lobed digits.—*D. W. M.*

Reason and Instinct. By the Rev. J. C. Atkinson, M.A.

The second position which we are, if possible, to establish, is—

That, at least presumably, as man emerges from the uncivilized or savage state, Instinct, by degrees, ceases to have any predominant power, and, infancy past, in no case utterly excludes the operation of Reason.

It must be observed at the outset that we shall meet with an inherent, it may be an almost insuperable, difficulty in the way of successfully maintaining this position otherwise than by presumption. I mean that, from circumstances I proceed to notice, observed cases or facts must, it is likely, always be too few and too special to afford grounds for a thoroughly safe induction in such an inquiry as the present. It is, I suppose, almost an axiom that self-originating civilization never had or can have existence; that if any nation or people have ever passed through any of the stages or processes implied in the term civilization, the fact of their having done so is a sufficient proof that some civilizing agent, independent of and external to themselves, has been at work among them, whether for a longer or shorter period, whether with more or less continued and energetic action. That agent may have been exclusively human, or partly human and partly superhuman; but in neither case have they left any distinct record of either the progressive or the completed effect of their agency, which is at all sufficiently available to us for deciding the amount of corresponding psychical change of the kind in which we are interested.

What I have called the human agency may have been carried out by the irruption and indwelling of an at least comparatively civilized community among the hitherto uncivilized, as was the case with our own British ancestors from the period of the Roman conquest of this country to that of the final departure of the conqueror from its shores. Or it may have been, though considerably more rarely and limitedly, by the long-continued visits, for the purposes of commerce,* of a civilized to an uncivilized community; or in one or two other but less potential ways which might be mentioned. In the case of the other agency specified, though the human agent has often, perhaps usually, been weak as to his own proper agency or influence, both as to its kind and degree, as contrasted with the work befere him, yet his ability for that work, however defective *per se* or in this sense, has been more than supplemented by the energy of the superhuman element. I refer of course to the case of the Christian missionary of all ages, when—himself a weaponless, despised, persecuted man—he has gone out to make converts, not with the aid of fire and sword, but by using only the arms of the Gospel, and possibly the arts of a higher human culture, to aid him in his labours. And as an instance of a process of civilization thus induced I may refer to what is going on in our own time in New Zealand.

But still, except in the case just cited, and one or two analogous ones on even a smaller scale, I am afraid we must say that we have no records existing which describe the several phases of the mind and nature of the one-time savage as he passed on along his transitionary course from the savage condition through the progressive stages which finally conduct to civilization, possibly to high civilization; at all events, none which describe those phases with sufficient minuteness and precision to enable us to trace with satisfactory distinctness the concurrent relative changes in the subtle influences of Reason and Instinct. None but the agents employed could, for the most part, trace or record the effect they produced. In few cases were they qualified or disposed to note those effects in their psychical bearing; and thus as to points of utmost interest to us in our present discussion it would be altogether vain, should it happen that records of civilizing influences and effects on any given people in any given age could be produced, to look in them for any precise or reliable information. Thus I believe it may be stated that the sources of information are both few and bare as to the changes in psychical development which accompanied the progressive advances towards and in the early civilization achieved by our own nation, or by the French or German nations. Perhaps something of what we need ought to be met with in the history of the Russian Empire, or rather of portions of its subjects. Certainly some of those subjects have emerged from at least comparative barbarism quite within the epoch dealt with by modern history, and I believe that whenever we can meet with authentic accounts of such emergence we shall see there is much to support the view we have enunciated in our present proposition. Unfortunately those accounts are both rare and scanty.

---

* It is perhaps possible that some influence of this kind had been at work among our remote forefathers anterior to the Roman advent, because, though certainly "uncivilized" by comparison, they cannot with strict truth be said to have been "savage" at that period.

Doubtless we may permit our eye to rest on many a tribe or nation in a state of partial and incomplete civilization, certainly more or less removed from the savage state. But almost without exception we lack authentic accounts of the remote antecedents of these tribes or peoples. They may have been, for ages beyond the memory of history, in a state such that it would be difficult to decide accurately whether it were one of progress or of regression as to essential civilization. Such, very probably, is the case with the people so happily termed by the *Times*' special correspondent, a few weeks since, "quaint barbarians;" and very much the same remarks may be made in reference to the numerous widely-spread Nomade* tribes or hordes who people so large a portion of "High Central Asia," and, omitting others, to the inhabitants of certain important and populous regions in Northern and Central Africa. How long their habits have been Nomadic, from what source they originally sprung, and whether the assumption of Nomadic habits was a step in a backward or forward direction, are all questions involved in much obscurity.

But if we are unable to trace backward the advances made to the comparatively civilized from the savage state in such cases as those just instanced, it is of course obvious that we can be in no position to pronounce upon what have been the accompanying changes in the sway of instinctive impulses and the influence of rational determination, as illustrated in the experience of any of those peoples which may become the subject of inquiry in such matters. The most promising course open to us appears to be to ascertain as nearly as possible what general rule as to the presence and influence of Instinct in uncivilized or savage man may be laid down in conformity with the most accurate and widest possible observation, which we have endeavoured to do when attempting to establish our first position; next, to deduce a similar law as to the comparative presence and influence of Instinct in men living in communities that are, and have been for a lengthened period, more or less highly civilized; and then, by contrasting these two rules, and checking the result by comparing it with the observed psychical condition and peculiarities of such partially or imperfectly civilized peoples as are reasonably believed to have been at some anterior period of their history in a savage or nearly savage condition, to deduce thence the presumable law as to the presence and influence of Instinct in communities passing through the process of emergence from barbarism to at least comparative civilization. And if, besides, we are enabled to adduce such instances as that of the New Zealanders, already adverted to, and, after trying our presumed law by them, find it enunciates principles in no way inconsistent with the observed phenomena, we have so far a confirmation of its truth and validity.

---

* The argument derived from the form and dimensions of the skull I postpone for consideration in a future division of the paper.

What, then, is the law of Instinct as applicable to man living in a condition, almost all the elements of which are in a greater or less degree referrible to or influenced by civilization; say, to the inhabitants or frequenters of the very centres of civilization in England, France or Germany?

We find the instinct of Fear or Self-preservation so limited and so modified that there is very little analogy or opportunity for comparison between the actions of the savage man or the wild beast under this influence, and those of civilized man under the influence of what we usually understand by the word Fear. Exact parallel between the proceedings or expedients of the savage when seeking to elude his enemies or escape danger, and any of the actions of an ordinary member of civilized society, there is none. As to what we have termed the instinct of Sexual Love, it exists past all doubt, but under circumstances which, except in some, by comparison, few cases, either anticipate its actual development or true influence, or else, from the careful restraint or repression to which they cause it to be subjected, effectually forbid alike its real operation or any evidence of its existence. The instinctive influence of Association certainly exists, and perhaps at least to the full as strongly as in any uncivilized community. The eager craving of our childhood, new every day, for companions of our own age; our gratification when the craving is supplied; the fervid friendships of our school-days; the habits of our maturer years, with the continuous interchange of mutual services and reciprocal dependency which characterize them; all testify to the existence, and the powerful, however little suspected, underworking of the Social Instinct. And yet all has to give way and disappear under the expediencies of a highly artificial and arbitrary state of society, so far, that is, as the inevitable human interdependency will permit. The next class of instinctive impulses we come to is that we have designated by the somewhat awkward term Food-craving. Of this, too, it must be said that it exists and operates strongly, and yet under such modifications and restraints that its results are greatly disguised, and its influence for the most part quite unsuspected. The elementary instinct certainly remains in innumerable instances: however little it may be usually recognised, there are many little circumstances which may and continually do lead to a manifestation of its continued vitality. It is really a most curious and significant fact, that, however remote men's lives have been from what are called field sports, however little awake to the existence of such pastimes their understanding has hitherto been, scarcely one in a thousand can be singled out who is not at once, and possibly even strongly, vivaciously interested if brought into contact with the active pursuit of some species of game. Nay, it is no uncommon thing for a thorough-bred cockney, a true *indigène* of "The Town," on visiting his country cousin, to become a partaker in and quite engrossed by the mysteries and enthusiasms of a rat-hunt or even a mouse-battue. The merest child, again, scarcely able to do more than toddle by himself, "wants" the rabbit or the bird which arrests his attention by its flight; as soon as he is a little more master of his limbs gives eager chase to the insect or reptile; counts it a day to be marked with white on which he first captures the bird that has flown in at the window, or unwarily entered his awkwardly-constructed trap; or, with his stick and string and crooked pin, magnifies in imagination the minnows which, unharmed by hook, rob him of his bait, into most unminnowlike dimensions, and glories for a week over the scaly infant which in some inscrutable way contrives to become his "first fish."

Still Mr. Briggs or even Gordon Cumming "takes the field" in a somewhat different way from the otter or the lion, and with an equipment somewhat varied from that of the red man of North America or the Balonda of South Africa. And, allowing all that may be urged here,—that Gordon Cumming in stalking an antelope, a buffalo or an elephant, or Mr. Briggs in trying to get near enough to a capercailzie to shoot it,* is doing no more, or acting no otherwise, than a lion or a bear in instinct-directed pursuit of their several kinds of prey, or than the savages of America, Africa or Australia in their almost equally instinctive prosecution of the chase,—still it is unquestionable that in the great mass of a civilized community, as to the processes of its every-day life, those impulses of Instinct which we class under the head of Food-craving are much as though they had no real existence or influence. If directed by them at all, civilized folk are directed by them, we must say, to the butcher, the baker and the brewer.

We have now only those impulses which are classed under Migration and Local Direction left for notice. Of the latter we must at once say that it is lost or entirely removed; of the former, that it exists still, but is greatly modified both in intensity and mode of application. It is individual now, rather than collective; the result of deliberate counsel and volition, rather than of spontaneous, restless impulse.

The result of our inquiry, therefore, would seem to be that Instinct doubtless continues to exist and even to operate in civilized man, but so modified, and under such circumstances of limitation and repression, that some of its impulses which are equally remarkable and energetic in the savage man cease to be perceived or exerted; others are so checked or domineered over by design or expediency that their power of origination is often obscured or doubtful; while the remainder, which appear to be the inalienable inheritance alike of the entire human family under all circumstances, physical and psychical, and of the whole or not a few of the lower tribes of animals, are so thoroughly subject to the power of Reason or its results, that we feel ourselves, as it were, naturally led to the conclusion which stands as our third position, viz., That in a fully civilized state Instinct still survives, but is so restrained and regulated in its operations by Reason that it becomes comparatively difficult to allege any but a very few of man's ordinary actions as greatly influenced by it, or to distinguish between the workings of Instinct and the rulings of Reason in actions which are, according to analogy, originally due to or prompted by Instinct.

---

* I take the circumstance stated below from Mr. Couch's 'Illustrations of Instinct,' p. 185. The cock of the woods is said to be so extremely shy that he can rarely be met with except in the pairing season; but then, "every morning he renews his song." While engaged in this occupation, and its attendant ceremonies of running with drooped wings and clucking, it seems he may—as is the case with several other birds at such times, *e.g.* the corn-crake and the ruffed grouse—be approached very closely; indeed, near enough sometimes to be caught by the hand. A man in Sweden goes out one morning to shoot these birds, and hearing one, makes his approaches in due form. "He could not see many yards before him in the forest, and only followed the direction of the sound. While standing motionless, in expectation of the renewal of the bird's call, he thought he perceived a dark object on one side of him, but it did not engage much of his attention; and at the usual note he moved on towards the game, but was surprised to see the black object had advanced in an equal degree, and now stood in a line with him. Still he thought more of the bird than anything else, and approached close to it before he perceived that a large bear stood within a few feet of him; and in fact just as they were both about to spring on the bird they caught sight of each other, and each retired." However, after a few moments both man and beast resumed their "stalk," which ended in the death of the bear by a shot from the man's gun, who was, however, so much startled that he did not even wait to see the result of the discharge. Again, "when a lion is very hungry and lying in wait, the sight of an animal may make him commence stalking it. In one case a man, while stealthily crawling towards a rhinoceros, happened to glance behind him, and found, to his horror, a lion *stalking him;* he only escaped by springing up a tree like a cat." (Livingstone, Miss. Travels, p. 138). A similar instance is recorded in Andersson's 'Travels in Africa,' in which the author himself was stalked by a lion, step by step, as he carried on the stalking process towards some game animal.

Now, bearing this conclusion in mind, and recalling that which we came to after passing in review the evidences of instinctive workings afforded in savage life, it seems to be a safe inference, that as any given race of men outgrow the pursuits and habits and influences of wild life, and acquire in lieu of them others more appropriate to a more advanced position in the scale of human progress, there should be a corresponding and contemporaneous inverse change in the operative power and influence of Instinct and Reason; that, in other words, in the progress of man from a savage to a cultivated condition Instinct holds a kind of middle standing in energy and active influence.

Now, it is perhaps hardly necessary to observe that there are but few Nomadic tribes whose habits are simply and exclusively Nomadic. Very generally, throughout the various subdivisions of the nations usually distinguished by that epithet, the men are found to be keen and persevering hunters. In not a few instances they not only employ the dog in the prosecution of the chase, but they enlist in the same service the instincts of others of the lower animals; the falcon for instance, and a species of hunting eagle. And, in whatever degree they are keen and successful hunters, their faculties show a degree of approximation to those displayed and exercised in so remarkable a manner by the savage in the pursuit of any of the different varieties of his game, — a display so remarkable, indeed, that, as we have already had occasion to notice, it naturally suggests both a comparison with the instincts of a predaceous animal similarly engaged, and the conclusion that in both cases the phenomena observed are due to the same operative cause.

Beyond this, those of the pursuits of the peoples designated, which may be described as the Nomadic proper, call for the exercise of some of their instinctive faculties in preponderance over their intellectual; and in their quest of pasturage or water for their manifold flocks and herds one is reminded again of the instinctof wild creatures, in that operation of it, namely, by which the undomesticated congeners of the animals these Nomades tend are guided when under the pressure of the wants in question; and not less so in the foresight and precaution against the attacks of predatory animals, so strongly suggestive of the similar foresight and precaution practised alike by the wild animal and the wild man.

I think, too, we may observe an approximation to the peculiar instinct of Local Direction or Self-guidance seen in the Red Man, in the apparent readiness with which they direct or guide a stranger to a distant place, only the general direction or bearings of which they are acquainted with. In Mr. Atkinson's interesting 'Travels in Siberia and Mongolia' the reader finds perpetual, and occasionally very striking, illustrations of the several points we have thus successively brought forward.*

Now it must be observed that, with respect to some of the Nomadic peoples, it is certainly a matter of probable conjecture, if not more, that their present condition is one of advance, or, at the least, one to which they have advanced, from a condition of barbarism. Several of the off-shoots or subfamilies of the great Nomadic nations are known to have been, strictly speaking, barbarous when first named by history, and to have passed on since from that condition to one of comparative civilization, in a few cases to really a high degree of culture. Others are known as yet remaining almost barbarous, perhaps we might say, rather, savage. And possibly it might be a not unfair inference, that, generally speaking, the possession and tendance of large flocks and herds is *de facto* a presumption that their owners, wanderers though they be of necessity, are on the upward march—however much the final accomplishment of that march may have been or may yet be delayed by repeated and lengthened halts—from barbarism or savage life to the more cultivated life of agriculture and the useful arts. And if so, bearing in mind the above-noticed peculiarities in respect of instinctive influence as displayed in the doings of several of the Nomadic peoples, we have so far a corroboration of the views embodied in the conclusion we arrived at a few pages back.

---

* I do not here, as I have usually done, append quotations as the authority for the statements in the text, or as the ground on which our arguments or inferences are founded, because the doing so in a satisfactory or sufficient way would require the extract of lengthened passages, which would demand increased space for a paper that already, I fear, bids fair to be too long. But I think the conclusions stated in the text are fully warranted by numerous statements and narratives met with in all parts of the book in question, as well as in others.

Turning next to the illustration afforded in the case of the New Zealander—and there are other and similar experiences of the same kind—we find our conclusion further borne out and confirmed. With all the instincts of the savage in full power and operation, and with almost more than the full complement of savage ferocity, antecedently to the time at which the missionary began to exercise upon him the humanising and elevating tendencies of Christianity, and of association with some of the better specimens of European humanity; yet in the course of a comparatively brief epoch he has been brought voluntarily, even eagerly, to adopt not simply many of the customs, but even some of the arts of civilization, with all which that implies of the stronger as well as more evident working of his intellectual faculties; while, what is perhaps even more to our purpose, he manifestly retains, though he has now little use for or desire to exercise them, his old instinctive powers and qualities, and candidly avows that he could easily, if need were or inclination disposed him, return to what was once his wonted exercise of them. But the question, how long, after how many generations, he could thus achieve a resumption of his forsaken instinctive habits, is one which it needs no elaborate system of discussion to reply to. A few years would so far dull the senses left unpractised in comparison with what was his wont in his savage days, and deaden his sensibility to impulses long disregarded, if not discontinued,—which on physical grounds, impulses such as those under discussion are, most easily come to be,—that it would be no easy matter to him to be again the man he once was in the endowments and attributes of savage life; while, as to what would be the condition of those of the second generation, born and brought up among many of the usages of civilized life, and utterly untrained in those of their fathers' *quondam* life, there can be no question that Instinct can never be in them what it was in their fathers, except under circumstances which will be brought under review in the next division of the paper.

In speaking of the civilization of the New Zealanders I am desirous to be understood as not intending to imply more than the facts will warrant. It is yet a question, I believe, whether the civilization of New Zealand and Polynesia (not to name other sites of the species of civilization under mention) is likely to be permanent, — whether, in other words, it has in it the capacity of self-sustentation. At present the impression seems to be that, except under circumstances providing a continued supply, and for some time to come, of external teaching, example and influence, the degree of cultivation attained is not likely to be maintained. It appears that up to a certain point instruction is with the utmost ease received, retained and assimilated by the learner, but that there is a point at which development of this sort stops. "The masters say," speaking of some of these islanders (Walpole's 'Four Years in the Pacific') "that in all the early parts of their education they are exceedingly quick, but not in the higher branches; that they have excellent memories, and learn by rote with wonderful rapidity, but will not exercise their thinking faculties." Some of these scholars were full-grown men, others little children. This fact appears to me to be exceedingly interesting; and it seems to be, so far, observable in all or nearly all newly-civilized savages. It is as though there were a barrier, which they could not pass, at this point of their intellectual improvement. And there is another circumstance of not less interest in connection with these people and the question of the probable permanence of their newly-induced culture; I mean that there is an only too-obvious infirmity or instability of will among them. Singularly impressionable, equally ready and able to forsake their own customs or usages, and rapidly to acquire new ideas and new habits, they yet require to be kept as it were "in leading-strings and must remain so until a generation of more solidity of will arises." ('Quarterly Review,' December, 1853). I termed the two facts just noticed interesting, and indeed I think they are. I hardly know how to state the inference they seem to me not so much to justify as to require, in such a manner as not to be offensive to the sticklers for the prerogatives and supremacy of the human race in contrast with the brute races. But it does seem as though the savage,—the uncultivated, uncivilized human being,—by his incapacity to exercise fully, if at all, his higher intellectual faculties, and by the comparative feebleness or instability of his will, not only justifies our position as to the comparative predominance, in certain particulars, of his instinctive powers and propensities— for the latter, it is at once apparent, can only be developed in inverse proportion to the intelligence and will—but affords us one more justification likewise for considering the human species as a part of the animal creation at large, and therefore not only in drawing analogies between his instinctive endowments and those of the lower creatures, but in asserting that they are essentially of the same nature in each of the two cases, because in the whole of the animal creation beneath man, which can be properly said to be possessed of any intellectual endowment, we see displayed in its highest degree the same volitional impotency conjoined with complete disability to employ the higher intellectual powers,—a disability which amounts to, if it be not rather the consequence of, complete deprivation of all the higher powers of mind.

J: C. Atkinson.

Scent.—In his interesting paper on scent Mr. Atkinson says (Zool. 6136), "No dog can hunt either feathered or four-footed game in the snow, even for ten yards, by the nose, except in so far as has just been mentioned," namely, "a freshly moved rabbit or hare for a few paces, evidently taking up the scent from the very recently impressed footsteps." My own experience, which has been considerable, has led me to form a different opinion, the grounds whereof I will proceed to give. I well remember once, when crossing some fields in a deep snow, coming upon the track of a hare in the precise course I was about to take. Merely for amusement, and with no view of finding the hare, indeed without thinking whether it was practicable or not, I pointed out the marks to my spaniel, whereupon he poked his nose into the impression in the soft snow, pausing a little to try for scent, after which, to my surprise, he, entirely of his own accord, deliberately traced the footprints for perhaps 150 yards or less, till, in a small patch of cover, he started the hare from her seat. The dog was a remarkably good one, especially safe and persevering upon a cold scent, but, as he was likewise a very sensible old fellow, he may very possibly have been assisted, at least, by sight in following up the hare, though I feel confident he was too knowing in his business to have undertaken the chase, had not his nose assured him it was not hopeless. The time of day must have been not earlier than 10 A. M., nor later than 11, so that we may reckon the footmarks to have been made probably not less than two or three hours previously. I possess however far stronger evidence than the above in support of my opinion. Though a heavy fall of snow necessarily put a stop to direct pursuit of partridges and pheasants, I have so repeatedly fallen in with them casually at such a time, beside woodcocks, snipes (the latter however in unfrozen springs and ditches), water rails, and moorhens, that I can state confidently the dogs never seemed to find any unusual difficulty in hunting them, this too in places where it was hardly possible for them to be aided by the eye. For shooting rabbits to beagles* a general carpet of thick snow used to be deemed a favourable opportunity. I have often been out successfully when the snow was quite fresh and soft, though it was vastly more agreeable, as well as easier for the dogs, when some continuance of frost had compressed the snow, and rendered the surface harder. In such a chase as that by beagles, or indeed by many dogs of what description soever, whether in cover or not, the pace will be too fast to admit of any assistance from sight, so that the pursuit must be maintained by scent alone, and in my own experience I never was sensible of any material difference in the style of the dog's hunting when there was snow upon the ground and when there was not. But though snow is no obstruction to hunting rabbits in woods or on open ground, it is a very decided difficulty in furze-covers or patches, because, when the snow first falls, it lodges on the thick top of the furze, whence it is shaken down by the working of the dogs beneath, and buries, partially or entirely, the trail of the rabbits which may be on foot. Frost without snow was never considered any impediment, but rather the contrary, to cover-shooting of any kind.—*Arthur Hussey; Rottingdean, Hants, July* 13, 1858.

---

* With good dogs, in woods or other cover of some kind, rabbits will afford abundant sport, though hardly satisfactory to those who cannot work for their game. Formerly I knew a pack of four or five couples of small beagles, kept exclusively for

A Nest of Montagu's Harrier.—About the first week of July a nest, containing three young harriers, was discovered on a rushy marsh near the Ranworth decoy. The old birds had been watched by the broodman flying backwards and forwards with food for their young ones, and on making a search the nest was soon found. Of the three young birds one only was feathered, the next partly feathered with down, and the smallest covered with down only, showing that the hen bird had begun sitting after laying the first egg. In the aviary of J. H. Gurney, Esq., M.P., at Catton Park, these nestlings have thrived wonderfully. At this time the youngest is full fledged, and all of them exhibit the rich chocolate tint of plumage forming the immature state of this species, and the facial disk is in all fully developed. About the same time that these were taken, another nest of young harriers was also found in the neighbourhood, by some men whilst mowing the marshes. In this case the old bird was snared on the nest, but I regret to say neither old nor young preserved.—*H. Stevenson; Norwich, August* 7, 1858.

Emberiza nivalis.—I write to record an interesting fact concerning the snow bunting (***Emberiza nivalis***) which has recently fallen under my notice, as well as to reply to the remarks from Mr. Doubleday with reference to a communication I made respecting the same species (Zool. 6015). My friend Horace Waddington, Esq., of University College, Oxford, spent a few days on Lundy Island, towards the end of this last May, and while there, among some other interesting ornithological specimens, obtained a fine Emberiza nivalis, a female bird in good condition. When the bird-stuffer in Barnstaple came to skin and dissect this bird, he found eggs inside her almost advanced to maturity. This shows that this species, although one of such high and cold latitudes, may occasionally linger behind, and nest in the warm south. I would also mention that among some eggs from Oxford, brought me in the month of

---

rabbits, and so well trained, that I have seen a hare jump up under the nose of one of the dogs, which took no notice whatever. Of course, shooting at a hare before those beagles was most strictly prohibited

June, 1857, by a boy I employed to collect there, was one which bore a strangely close resemblance to the eggs of the snow bunting. But beyond the bare possession and presence of the egg, I had no other data on which to ground my conclusion, for the boy could neither tell me what the nest was like from which he took the egg, nor where it was he obtained it. I at the time (with sundry doubts of reservation) adopted the opinion that Mr. Bond was kind enough to give me on the matter, which was that the egg in question was probably one of the numerous varieties of the egg of the common E. citrinella. Mr. Doubleday brings down upon me the great authority of Selby, united to his own experience and observation. Although feeling that a humble tyro like myself ought unhesitatingly to bow submission before such powers, yet I must either hold that if it be a general rule for E. nivalis to avoid pitching upon trees, my snow bunting was the exception to prove that rule; or else must deem myself to have been for some three weeks the victim of an optical delusion, and that my bird was not even the shadow of a shade, having no existence whatever beyond the intangible limits of my mental vision. But for the following reasons I must remain firm to my belief that the bird I saw was a bird, genus Emberiza, species nivalis. The field I saw it in was a large one bordering on a salt marsh, part of the field lying in fallow, part green with turnips. The field has a high hedge round it, in which on one side stand two or three elm trees. In this field I must have started this bunting more than a dozen times during the space of three weeks. The bird used when started to settle again among the turnips a little farther on, never allowing me to get within shot, and if I persisted in following it up, would at last fly off and alight on the hedge, or else on one of the trees. One wet and windy day, when looking after snipe, I as usual started the bird out of the turnips, and although it got up at a considerable distance, fired at it, and I fancy struck it slightly, as it fluttered down into a hole in the hedge, and here I got so close to it that I was just about to take it up, deeming it badly hurt, when it flew out, was carried off by the squall, and I unfortunately saw it no more. Still I had been quite close enough to be in my own mind quite certain as to the bird's identity. With regard to its being of a white colour, I do not think this fact has any weight towards proving that my bird was not nivalis. "A few years ago" (I quote an extract from a letter of Colonel Montagu which is to be found in Yarrell, vol. i. p. 426) "I shot more than 40 (snow buntings) from the same flock, during severe weather in the month of January, hardly any two of which exhibited precisely the same plumage, but varied from the perfect tawny to the snow bunting in its whitest state." In conclusion, Mr. Newman's suggestion that I might have seen the pretty little Muscicapa atricapilla, and have mistaken it for E. nivalis, will not hold; *first*, because in the winter months a summer visitant like this little flycatcher would find it difficult to obtain sufficient food to sustain life; *secondly*, because M. atricapilla is a rare bird with us in Devonshire, and I have only seen it twice, and that at very distant intervals; and *thirdly*, because though I candidly confess myself a tyro, yet I do give myself credit so far as to think it hardly possible to so palpably blunder in the very rudiments of Ornithology as to confound birds which differ so widely in their habits as a flycatcher and a bunting. —*Murray A. Matthews; Raleigh House, near Barnstaple.*

Note on the Blackbird sucking Eggs.—A few days ago one of my brothers observed a blackbird discussing what he evidently regarded as a great dainty. On my brother approaching the bird reluctantly quitted his meal, which was nothing less than an egg of the common song thrush. Has any ornithologist noted egg-sucking to be a failing of other blackbirds? or is this feat of gormandising a unique instance?—*Id.*

Is the Red Grouse of Britain really distinct from the Norwegian Willow Grouse? — The red grouse (*Tetrao scoticus*) has hitherto been considered peculiar to the British Isles. I must confess, for my own part, I could never comprehend why it should be absent from neighbouring countries possessing all the necessary features required by the bird. Now comes the question,—Is the red grouse really distinct from the willow grouse of Norway (*Lagopus subalpinus*, Niellsen, *Tetrao Saliceti*, Temminck)? My own opinion is that they are one and the same species, the difference in plumage depending upon the climate and food, the one species feeding principally on heather and ling, while the food of the other consists mainly of small apical willows, juniper, &c.* This may at first appear a bold assertion; nevertheless, I feel convinced that when the subject is looked into by competent parties it will be found correct. Perhaps I ought now to state why I have come to this conclusion. About ten days ago I was staying at Hjerkin, in the Dovrefjeld Mountains, close to Suechœttan. Making from this station an excursion to some snow fields (at an elevation of perhaps 6000 feet) for the purpose of collecting Diatomaceæ from the snow water, I had to traverse some dead thickets of juniper and dwarf willows: here I caught a young fully-fledged fieldfare, and flushed a willow grouse with a brood of young. The old bird by its flight, &c., reminded me instantly of the red grouse (which I have so often shot on our moors), the only apparent difference being in the colour, which was lighter, especially in the wings. Here I may remark that the plumage in the red grouse is always lighter in the early part of the season, and that the dark chesnut-brown tint is not assumed until later in the autumn or towards winter. I managed to catch one of the young birds, and the exact similarity of colour between this and the young of the red grouse was at once apparent. After leaving the fields, and arriving at Christiana, I went to the Museum, in order to examine more closely the numerous and admirably-preserved adult specimens of the willow grouse belonging to this institution. On seeing these I was more fully convinced of the identity of the two species; and on mentioning my views to the learned Curator, Professor Essmark, he informed me that Mr. Gould (who saw these specimens some time ago) also inclined to think they were identical with the red grouse. Surely this is a matter of interest to those fond of Natural History, and one which I trust will be fully investigated. Should undoubted eggs of the willow grouse be in the possession of any gentleman in this country, who would closely compare them with eggs of the common grouse, this would, I think, throw some light on the subject, and perhaps clear up a matter of much interest. Having mentioned the Museum at Christiana, I cannot let this opportunity pass without recommending to the attention of those connected with similar institutions, the admirable contrivance adopted here for economising space in the arrangement of specimens, particularly those which are kept in jars and bottles in spirits. The contrivance consists of a number of vertical revolving pillars, with shelves around them at various distances, according to the height of the bottles. These pillars are arranged in rows in large glass cases. Professor Essmark, in a very kind manner, explained the construction, which I am sure is worthy of being adopted in all museums where economy of space is a desideratum. The plan is entirely the invention of the worthy Professor.—*G. Norman ; Hull, August* 9, 1858.

---

* If I mistake not, the red grouse to a slight extent follows the example of the willow grouse in assuming a winter garb of white; for who has not noticed the beautiful margin of white to the feathers of birds shot late in the season? This is more marked in very old male birds.

[There are three points of importance (two of them not noticed by Mr Norman), which require serious investigation before any conclusion on this interesting subject can be attained. *First*, the willow grouse turns white in winter in the same manner as the ptarmigan, whereas the red grouse, although inhabiting the same districts, exhibits no such tendency. *Secondly*, the wings of the willow grouse are *always* white, those of the red grouse *never*. *Thirdly*, the beak of the willow grouse is *much* stronger than that of the red grouse. These three are regarded as *specific* characters, whereas the different hue of plumage which Mr. Norman very rationally accounts for is not regarded as of specific importance.—*Edward Newman.*]

Occurrence of Baillon's Crake (Gallinula Baillonii) *near the Land's End.*—A mature specimen of this pretty little bird, in very perfect plumage, has, for the second time, turned up in this neighbourhood. It proved to be a male bird, and was captured in a narrow ravine running down to the sea. The blue about the head is almost uninterrupted, the olivaceous-brown, commencing in a narrow line on the top of the head, and dilating as it goes back to the occiput. Mr. Vingoe has preserved the specimen, and he told me that the irides, instead of being reddish brown, were bright scarlet. The beak of this bird is shorter than that of the little crake, and in fact, a far as I can observe, the bird is shorter altogether.—*Edward Hearle Rodd; Penzance, July* 9, 1858.

Beautiful Variety of the Garganey Teal.—On the 30th of July a pair of young Garganey ducks were killed at one shot on a marsh at Strumpshaw. Of these one exhibits the usual immature plumage of this species, whilst the other is a most delicate cream-colour all over, without spot or streak of any kind, the beak pink, and the legs very light in colour.—*H. Stevenson ; Norwich.*

Newt changing its Skin.—I happened to go to my aquarium yesterday just as one of the smooth newts was changing its skin. The operation was nearly completed, the skin being pushed down the body in a ring, by which the hinder legs were, to use an Irishism, handcuffed to the tail. The snout was principally used in shoving it down, and the tail was scarcely free when the animal seized the skin with its mouth, and in half-a-dozen gulps swallowed it. It is well known that the toad adopts this convenient method of disposing of its worn-out garment, but I do not remember to have seen the same practice recorded of the newt. The act of swallowing occupied nearly a minute, during which three filmy gloves (the integument of the paws) were projecting from the mouth. Although a tremendous yawn testified to the fatigue of the performance, the newt made no objection to concluding the meal with a small proportion of roast mutton.—*George Guyon ; Richmond, Surrey, August* 12, 1858.

Occurrence of the Short Sun-fish on the Sussex Coast.—The 'Sussex Express' of July 24, states that on the Monday before, July 19, a short sun-fish was taken with a boat-hook while floating in Seaford Bay, off East Blatchington, by three brothers named

Green. The specimen measured 2 feet 10 inches long, and 3 feet 9¾ inches broad from points of fins; it weighed 77 lbs.—*Arthur Hussey; Rottingdean, Hants, July* 26, 1858.

Polyommatus Artaxerxes and P. Agestis.—In the 'Zoologist' (Zool. 6101) is a note from Mr. Logan, who, with some others of our northern entomologists, has come to the conclusion that P. Artaxerxes and P. Agestis are varieties of one and the same species, but upon what grounds I must say I am quite in the dark. Dr. Lowe read, some time back, a paper before the Royal Society of Edinburgh, to prove that P. Artaxerxes, P. Salmacis and P. Agestis, were one and the same. Mr. G. Wailes, of Newcastle, and Mr. Logan, are of the same opinion. It is strange that neither of these gentlemen has ever seen the larva of P. Agestis. From this I think they have decided too prematurely. Mr. Logan says, "I have never been able to induce any of our southern collectors to send me the larva of P. Agestis, which must be common and easily found;" this proves that he does not know its habits. Although the imago is common, the larva is not easily found. I discovered the larva of P. Agestis about eight years ago, and have taken it every year when on the Deal coast; why most easily found there, I will soon explain. I am surprised Mr. Logan has never sent to me for it. I have no hesitation in saying that it is quite different from the drawing of P. Artaxerxes he so kindly showed me when at Duddingstone last season. P. Agestis appears at a different time, is double brooded, and is different as to locality, food-plant and larva; its manner of changing to the pupa state is different. What can make it a variety of an insect that is not found in this country? The Helianthemum is common in many parts, but there is no P. Artaxerxes, and P. Agestis will not feed on it; so it cannot be from its rarity of the usual food-plant that P. Agestis takes to the Erodium. P. Agestis was a species, I think, before P. Artaxerxes was known. Why it is now to be a permanent variety I, for one, am at a loss to know. I have seen varieties of P. Agestis; these must now be called varieties of the permanent variety of P. Agestis: this will sound strange. The following is the history of P. Agestis, which I should like to see side by side with P. Artaxerxes, and it would then be seen that there are no two facts alike in their history:—The first brood comes out at the end of May; it is not so abundant as the August brood, and is much smaller. The larva is found in July, feeding on or under Erodium cicutarium, which grows here in large patches or beds, in many places apart from other herbage; and it is from this cause that the larvæ are so easily found. Having no legs, like many other larvæ they cannot feed on the tops of the plant. The common blue (*P. Alexis*) swarms in many places, but the larvæ are very seldom found, from a similar cause. On pulling aside the branches of the Erodium, the larvæ and pupæ are found on the sand beneath them; while the larvæ of P. Artaxerxes spin up on grass, dead stalks or the surface of stones; this, I think, is a reason quite sufficient to separate it from Agestis, and to establish each as a species.—*H. J. Harding;* 1, *York Street, Church Street, Shoreditch.*

[When my contributors differ from me on any point whereon I have expressed a decided opinion, it is, I think, not otherwise than courteous to support my own previously expressed views by any legitimate appeal to facts within my absolute knowledge. Now the identity of Agestis and Artaxerxes is *my* subject; I most unequivocally expressed my opinion as to this identity more than twenty-five years ago, in the

'Entomological Magazine,' and this opinion has many times been repeated; moreover, have *never* separated the two insects in the cabinet under my care. So that when an entomologist of Mr. Harding's experience and habits of constant observation comes into the field to break a lance with me on this subject, I experience

"That stern joy which warriors feel
In foemen worthy of their steel."

Now I am able to tell Mr. Harding that the apod larvæ feeding on Erodium cicutarium at Deal, which he has above described, and which have been sent also to Mr. Logan, who succeeded in rearing them, are those of a coleopterous insect, the beautiful Hypera fasciculata. PS.—Will Mr. Harding pardon me if I also inform him that it was Vanessa Atalanta, not Cynthia Cardui, that he found feeding on the pellitory? See 'Entomologist's Intelligencer' for July 17, No. 94, p. 125.—*Edward Newman.*]

Sound produced by the Larva of Acherontia Atropos.—Some few days since I became possessed of two specimens of the caterpillar of the death's-head moth (*A. Atropos*). Upon removing them one evening, for the purpose of supplying them with fresh food, they emitted a singular noise, continuous and rapid, which I can only liken to the sound produced by the sparks of an electrical machine. Every entomologist is aware of the peculiar noise emitted by the perfect insect (though as yet, I believe, the question has not been satisfactorily solved), and of the statement made by Mr. Raddon that the insect is able to produce the sound prior to its emerging from the pupa. I do not, however, remember ever having read an account of the instance I mention, and which can be confirmed by a gentleman present at the time. I should wish, therefore, to ascertain whether the fact has ever been recorded, and, if so, I should esteem it a favour if you would kindly furnish me with the authority. Does M. Goureau, in his 'Memoir on the Sounds of Insects' notice the fact?—*John Edmund Weatherhead; Curator, Town Museum, Leicester, July* 21, 1858.

Capture of P. Daplidice near Rottingdean.—On the 5th instant I had brought me a specimen of P. Daplidice. It had been taken on the same day near Rottingdean, a village near here, and was still alive when I had it. It is a female, and in very fair condition.—*John N. Winter; 28, Montpellier Road, Brighton, August* 9, 1858.

Pieris Daplidice.—I beg to record the capture, near here, of this insect, yesterday. There was a strong wind blowing at the time; and as I was walking along, it rose from the ground close to my feet to several feet above my head, when I distinctly saw the green under side; and shortly after its return to *terra firma*, it was pinned in my collecting-box. It may be well to add that there is no doubt respecting its identity, as experienced entomologists have seen it alive.—*J. Pratt; 35, Duke Street, Brighton, August* 6, 1858.—*From the 'Intelligencer.'*

Anthrocera Minos in the West of Scotland.—I have not observed that Anthrocera Minos has hitherto been taken in Scotland. I enclose one or two specimens captured on the 26th of last month on the side of the road between Oban and Dunstaffnage Castle, at the mouth of Loch Etive. I had no net, but managed to knock down eight or ten with my handkerchief and to spit them for the sake of the locality, with fine Highland pins.—*Professor Wyville Thomson; 6, University Terrace, Belfast, July* 3, 1858.—*Id.*

Cossus ligniperda at Sugar.—Within the last ten days I have taken no less than five specimens of C. ligniperda at sugar. They sit on the sugar very much in the same manner as a Noctua, but perhaps rather closer than the majority of Noctuæ. I think it is a fact beyond doubt that the Bombyces do occasionally come to sugar, and although people look incredulous when you mention having taken one under those circumstances, and although they at once point out structural reasons why they should not be so taken, still there is no disputing the fact. May it not be just possible that although they cannot imbibe the sweets, the smell may prove as attractive to them as the taste is to the Noctuæ. I may mention also that many of the genus Lithosia come regularly to sweets; two or three instances have come under my own notice, and several others have been recorded. I should be glad to hear if any entomologist has met with other Bombyces under similar circumstances, and if so, trust that they will record it in the 'Intelligencer.'—*Robert McLachlan; Forest Hill, July* 1, 1858. —*Id.*

Two Pupæ in one Cocoon of the Silkworm. — One of my juvenile brothers, who keeps silkworms, was surprised yesterday by finding two pupæ in one cocoon. The cocoon is about twice the ordinary size, but of the same shape exactly as if made by one insect, and the two pupæ are quite loose inside without any separation. What seems rather remarkable is, that nearly the whole of the two threads of silk wound off as easily as if there had been but one. As I never heard of any similar case, this struck me as rather remarkable. Perhaps you may have met with something like it. I have the cocoon now, reduced to transparency by the removal of the silk, and should you think it sufficiently *outrá* I shall be happy to show it to you.— *T. Wildman; Solicitors' Office, Customs, E.C., July* 29, 1858.

Agrotis lucernea.—A single specimen of this insect was captured by myself, at Folkestone, about six weeks ago.—*Sidney Cooper; Stone Bridge, Tottenham, August* 2, 1858.

New Mode of capturing Nonagria geminipuncta. — Being occupied in collecting the larvæ and pupæ of N. Typhæ, the attention of myself and brother was drawn to the traces of larvæ on the stems of Arundo Phragmites. The larvæ, of which the figure in Humphrey and Westwood (N. geminipuncta) is pretty accurate, were in colour yellowish white, the head brownish black, a plate on the prothoracic and caudal segments without spots, but the meso- and metathorax had a ring of minute dark brown dots in pairs, the other segments with two dorsal and two lateral dots, and the spiracles black; from these dots arise small setæ. These larvæ did not confine themselves to one reed only, having in many cases attacked some half-dozen of the smaller plants before depositing themselves, full-fed, in the lower internodal spaces of the largest. Again, the window, which was never absent, was almost but not quite invariably above the entrance-hole, and beyond these two apertures was a wall of pith cemented together with silk,—a very necessary precaution, as the remainder of the reeds was frequently filled with water. We found as many as four pupæ in one internode, and sometimes six in an entire reed. The imago, which proved to be N. geminipuncta, emerges from the chrysalis between the hours of 6 and 9 P.M., being apparently influenced by the darkness, as an artificial twilight had the effect of bringing them out at mid-day. As the reeds frequently collapsed in drying, we were obliged in most cases to cut out the pupæ, which came out equally well. We have a few to spare.—*W. D. Crotch; Uphill House, Weston-super-Mare, August* 12, 1858.

Epione Advenaria.—A single male of this local insect was taken at night, at Warren Gore, Lewes, this summer, by Mr. John Porter.—*Edward Newman.*

Botys lancealis.—This has been an extraordinarily good season with us for Botys lancealis. Last year my brother, after exerting great diligence, thought himself very lucky in securing a dozen specimens. This year, however, in a path running through a wood about two miles from Barnstaple, we observed B. lancealis in profusion. The path in question has a bank on either side, covered with wood, flowers and vegetation, and among the tall grass and flowers skirting the bottoms of these banks, B. lancealis kept house in goodly numbers. Like other pearls, B. lancealis is easily disturbed, and when on wing flies so slow as to be most easily netted. From the first week in June until the end of that month, this species continues out, and directly it is over it is succeeded by another little pearl (*Hypenodes albistrigalis*), which haunts the same path, and is to be disturbed from the same long grass which formed the lurking-place of B. lancealis. This little species is also abundant. Had we been inclined we might have pinned some hundreds of B. lancealis, but we contented ourselves with netting about fifty, to supply our correspondents, and to leave us a few duplicates for exchange. In this same path Erastria furcula was very abundant this season.—*Murray A. Mathews; Raleigh House, near Barnstaple.*

Larva of Chilo gigantellus.—This larva feeds in the stems of the reed. In order to move from one reed-stem to another, which when the plants are growing in water would seem a difficult proceeding, it bites off a piece of stem about its own length, spins it together at each end, and becomes for the time a case-bearer, till floating on the water it comes to another reed-stem, up which it crawls, fastens its canoe to it by one end, often perpendicularly, and bores into the interior. This account of its habits is given by Herr Moritz in Treitschke's work: the same observer also mentions that Chilo forficellus, which feeds in the stems of Poa aquatica, likewise makes a tubular case with a view to locomotion. I believe these case-bearing larvæ of the genus Chilo are occasionally mistaken for larvæ of the genus Coleophora.—*H. T. Stainton; July* 10, 1858.—*From the 'Intelligencer.'*

Coleophora Leucapennella.—Herr Mühlig has been so kind as to forward me some larvæ of this insect. They feed inside the capsules of Silene nutans (do any entomologists ever come across that plant in this country?) and when the capsule has been emptied of the seeds, the larva wishing to walk to another capsule, and not caring to be at the trouble of making a case, carries off the capsule bodily *cochlearum instar*, and bores into another capsule, till it has obtained as much food as it requires. Stranger still, the body of the larva having the capsule to occupy, swells out to most grotesque dimensions.—*Id.*

Xysmatodoma argentimaculella (*Tinea argentimaculella, Stainton's Insec. Brit. p.*36). —From the middle to the end of July I met with this brilliant species, and also bred it from cases on lichen growing on an old wall, nearly covered with herbage, at Bollington, near here: the habit and general appearance of the moths so resemble Melanella, which I have often bred, that they gave me the clew as to their whereabouts, or I might have been puzzled for years where they came from; the cases are exceedingly difficult to see, being precisely the same colour as the lichen they feed upon.—*R. S. Edleston; Bowdon, Cheshire, August* 2, 1858.

Captures near Bowdon.—During the present month I have captured the following species:—Nemeophila Plantaginis, Anaitis imbutaria, Cœnonympha Davus, Acidalia inornaria, A. nitidaria, A. obsoletaria, Hyria auroraria, Pyralis glaucinalis, Nephopteryx abietella, Cryptoblabes bistriga, Amphysa Gerningiana, Tortrix viburnana, Sericoris decrepitana, Retinia Buoliana, R. pinicolana, R. pinivorana, Stigmonota coniferana, Crambus falsellus, Macaria lituraria.—*Id.; July* 12, 1858.

Larvæ of Cemiostoma lotella. — Mr. Wilkinson, of Scarborough, has sent me a magnificent supply of the larvæ of this little gem. The mine is at first a round gray blotch on the upper side of the leaf, the egg-shell being a very conspicuous object on the centre of the blotch; the mine afterwards is extended much beyond the gray central portion, the outer area being pale green. It is not a little singular that Nepticula Septembrella and Cemiostoma lustratella feed on Hypericum, and the mines are often mistaken by the uninitiated; and that two species, so to speak, perfectly parallel, Nepticula cryptella and Cemiostoma lotella, feed on the Lotus; and their mines might readily be confounded by one not personally acquainted with them. The leaves sent appear to be Lotus major, not corniculatus, but probably it will feed on both species.—*H. T. Stainton; July* 5, 1858.—*From the 'Intelligencer.'*

A new Mine on Centaurea.—The day before yesterday I made a curious discovery: I found, at the edge of a wood, the leaves of Centaurea jacea tenanted by a mining larva: the larva is very slender, of a yellowish green, spotted with black, with head and second segment pale brownish: the mine radiates in different directions, like those of Druriella and Heydeniella. The larva abides over the midrib, beneath the loosened skin, and only sallies forth into the mine for the purpose of eating. I have only found a few, and am very curious to know what they will produce.—*Professor Frey, Zurich; June* 23, 1858.—*Id.*

The Centaurea jacea Miner.—I have no doubt that by this time Professor Frey is as much astonished as myself at the change which has come over the appearance of the caterpillar. The yellowish green look which they had is now gone, and they may fairly rank amongst the prettiest of the micro larvæ. They are now of a pale yellow colour with a dorsal line, and two others on each side of it, bright pink. The lines are slightly interrupted at the junction of the segments. As they approach the antepenultimate segment these lines become united, so that the terminal segments are of a uniform pink colour. The head and corselet still retain their pale brown appearance, and the posterior edge of the corselet is now bordered by a darker line. The two rows of dark spots also remain on each segment, four of which posteriorly and two anteriorly are the most conspicuous, and from each of these starts a single hair. I am half inclined, despite their very gay appearance, to believe them to be the larvæ of one of the Depressariæ.—*John Scott; Southfield Villas, July* 17, 1858. [On the contrary, we believe they will produce a new species of Cosmopteryx.—*H. T. Stainton.*] —*Id.*

[Botanists in this country have invariably assigned the name of Centaurea jacea to the very common Centaurea nigra. Are the two species thus named on the Continent really distinct? If not, search the common knob-weed (*C. nigra*) for this miner.—*E. N.*]

Abundance of Psyche nitidella.—I had been sugaring all night at Wickham, and in the morning searched the fence with my usual success,—which is none,—and, feeling sleepy, lay down on the bank by the fence and dozed a little: presently I was disturbed by something fluttering in my face, and opening my eyes recognised Psyche nitidella: turning for my net to catch him I saw that there was a little swarm of them flying about me, and as fast as I could take them they continued to come round me as long as I continued lying on the ground; when I got up, thinking to take them better, their interest in me seemed to cease, and I could take but few, and by six o'clock there was not a specimen to be seen; but I had secured about forty: it was about five o'clock when I first discovered them. I cannot understand what attracted them; there did not seem to be any females about, at least I could see none, nor any cases, and the specimens I have bred do not seem to care much about the females.

After I got up they did not swarm any longer about the spot where I had been lying: they flew so close about me that I could hardly net them without hitting my face and head, and when I had boxed some of them in tin boxes, and laid them on the ground, other specimens flew about them, and seemed to be trying to get into the boxes.—*C. G. Barrett*, 37, *Park Street*, *Mile End ; June* 26, 1858.—*Id.*

Phibalapteryx fluviata and P. gemmaria : are they distinct ?—I took, on the 9th inst., a male specimen of this insect: it therefore appears to be double-brooded as well as gemmaria. It seems very peculiar that all the specimens of fluviata that have been taken in England, as far as I am aware, are males, and all the specimens of gemmaria females. I should be glad to hear if any one has met with female specimens of fluviata or male specimens of gemmaria. Or are the two species only one, and the difference in the markings only sexual?—*G. Harding, jun.*, *Stapleton, near Bristol; June* 28, 1858.—*Id.*

[The occurrence of these two rare insects in company near London, and the examination of many recent London specimens, the males being invariably fluviata and the females gemmaria, led me to suspect the identity of the two some weeks since. —*E. N.*]

Retrospective Criticism on Dr. Gray's view of the Cause of the Cells of the Honey Bee being of an hexagonal form. — In the Proceedings of the Entomological Society (Zool. 6189) there is a report of a discussion on the shape of the cells of the bee, in which the following sentence occurs :—" Dr. Gray contended that the hexagonal form was undoubtedly the result of lateral pressure : if cylinders composed of any yielding substance (vermicelli for instance) were placed side by side and subjected to such pressure, they were invariably forced into the hexagonal form. He considered the attempt made by natural theologians, to prove that the formation of a hexagonal rather than a cylindrical cell indicated the possession of a greater degree of Divine wisdom bestowed upon the insect, was the greatest piece of humbug they had ever brought forward." I leave the matter of fact to those who have studied the subject, merely remarking that the position seems to me perfectly untenable ; but the closing sentence broaches a much wider and more important subject. I have always understood and believed that all natural theologians agreed in describing instinct to be that power imparted to all animals by their Creator, by which they do, without thought or reasoning, everything which in the ordinary course of nature they have to do, in the best possible manner; and that all naturalists are equally agreed that this power is evident in the actions of every wild animal and insect. If, then, the hexagonal is the best form for the cells of the bee, that they should make them of that form is just what we might have expected from the analogy of all animated nature. Dr. Gray does not say where the lateral pressure comes from ; but if it is given by the bees themselves, or arises from some cause which might have been calculated upon, the question of instinct remains untouched ; but if the pressure is accidental, it seems to me that the supposition that bees make cells of one form, and then leave them to be changed into another and a better one, by something which may or may not happen, is quite inadmissible.—*Thomas Boyd ;* 17, *Clapton Square*, *August* 6, 1858.

Beetles at Home.—In the front of this house, so graphically described in Newman's 'Insect Hunters,' there is a small bricked area, and the aspect being north it is usually somewhat damp, and the resort of sundry Onisci. Here they might lead quiet and sequestered lives as becomes such retiring animals, but it is no happy valley for them, for by accident or design certain filibustering Carabidæ drop down into it, and, relinquishing their usual nocturnal habits, employ themselves by making murderous daylight attacks upon the peaceful Onisci. In vain they roll themselves into balls; their assailants find a salient point, and, working away with their powerful mandibles, soon leave nothing but a shell. These beetles, however, do not devote exclusive attention to the Onisci, for if a caterpillar unluckily falls from the birch tree above, they devour it entirely; any poor powerless beetle that comes in their way is speedily added to the list of victims; even those hardest of all Coleoptera—the Curculionidæ—I find deprived of legs and antennæ, and eventually I believe the marauders attack each other, for their mutilated skeletons are scattered in all directions, showing the truth of the old adage, that "two of a trade never agree." The species I find are Carabus violaceus, Pterostichus madidus and P. melanarius, and sometimes a member of another amiable family, Ocypus olens, drops in to assist at the revels.—*J. W. Douglas*; 6, *Kingswood Place, Lee, July* 29, 1858.—*From the 'Intelligencer.'*

Notes and Observations on the Genus Necrophorus.

By Frederick Smith, Esq.

When I was a very young entomologist, I read with indescribable satisfaction the graphic account of the habits of the "burying-beetle" by Rusticus, in the 'Entomological Magazine:' these insects have been favourites with me ever since. There are certain genera and species of insects for which one has a particular regard, arising entirely from the simple circumstance of our having become intimate with their habits through the medium of some master mind, who has correctly pourtrayed them. The history above referred to is of course only the habit of the insect under such circumstances as described, or as they would be when dealing with similar "small deer," as a frog, a mole, a mouse, or any small bird. I will state my own experience of collecting these insects under a dead sea-gull: I found the bird dead on the shore, and placed it on a sand-bank which had a south-west aspect; this was towards evening on a hot day in the month of August. The following morning I captured, beneath the bird, five beetles (four males and one female) of Necrophorus Ruspator, and one male and one female of N. Vestigator; the next morning I took two of N. Humator and five of N. Vestigator; on a third visit the gull yielded two males of N .Vespillo, four of N. Ruspator, and three of N. Vestigator, the number of the sexes being very unequally divided, the specimens of Ruspator being all males. By the time I had secured the above number of specimens,—which, together with hosts of flies, Silphidæ and Staphylinidæ, had deposited eggs, which had hatched and their maggots were feeding on the carcass,—it had become too putrid any longer to attract the Necrophori. I had thus obtained twenty-three individuals of different species of Necrophorus, under a single bird. A bird of the size of a sea gull is never buried, as would be the case with a bullfinch or any small bird: the larvæ of Necrophorus, when full fed, leave the dead carcass and bury themselves in the earth.

Following up the same system, with other baits of a similar kind, enabled me to obtain fifty-seven burying-beetles, of species as follows:—

Necrophorus	Vestigator	35
„	Ruspator	10
„	Humator	7
„	Vespillo	5

It will be seen from this enumeration that of the rarest of our red and black species I obtained the greatest number. The following is the nomenclature adopted; it may probably not prove eventually to be correct, but it is in accordance with named specimens from Germany, in the collection of the British Museum:—

1. Necrophorus Vestigator, *Herbst.*, *Illig. Mag.*
   Sepultor, *Gyll.*, *Steph*
2. Necrophorus Ruspator, *Erichs.*
   Vestigator, *Steph.*
3. Necrophorus Humator, *Oliv.*, *Steph.*, &c.
4. Necrophorus Vespillo, *Linn.*, *Steph.*, &c.

I will now make a few observations on the species of the genus, and point out such localities as have produced them of my own knowledge. It is quite evident to me that the species, at least some of them, are local, for although I have never lost an opportunity of laying traps or baits when visiting any new locality, I have, during the present season, for the first time, captured N. Vestigator.

Necrophorus germanicus. In Stephens' 'Manual' three localities are given for this insect; the only one where it has been captured, of my own knowledge, is Hastings, where my friend, the late Mr. Heales, himself took a specimen about twelve years ago.

Necrophorus Humator. Apparently generally distributed; I have always found it attracted by any large animal or bird, sometimes in great numbers.

Necrophorus Vestigator. Stephens gives the London district, but although I have searched under birds, moles, &c., in many parts of the suburbs of the metropolis, I never met with it, nor do I remember any collector of my acquaintance who has been more fortunate; the only locality with which I am acquainted is the neighbourhood of Lowestoft, in Suffolk.

Necrophorus Fossor, Erichs. Of this species I obtained six examples under dead adders, at Southend, in the month of August; I never found it elsewhere, but Stephens gives the London district and other localities, showing it to be very widely distributed; it must be much less abundant than most of the species, or I think I must have either met with it or seen it in other collections more frequently. This is the N. interruptus of Stephens.

Necrophorus Ruspator. Stephens says, "Generally distributed:" as far as my experience has enabled me to judge, it is far more numerous in some situations than in others: I have only once or twice taken it near London, whereas about Southend, Deal and Lowestoft, it is plentiful.

Necrophorus Mortuorum. This is certainly widely distributed, although I did not find it in Suffolk.

Necrophorus Vespillo. Generally distributed.

Necrophorus Obrutor, Erichs. Given in Stephens' 'Manual' as British; I have not seen any British example: said to be taken at Hertford.

Frederick Smith.

Megachile centuncularis.—At the back of this house two rose trees grow up the wall, one of which is selected by this bee for her operations, the leaves being larger and thinner than those of the other tree, which are never touched by her. She comes in a direct line over the tall trees at the bottom of the garden, and soon selects a leaf. On this she settles, generally, but not always, with her head to the footstalk, and taking the leaf between her legs, rapidly cuts out a piece in the manner often described, sometimes circular, but often oval, her operations being no doubt guided by the requirements of her nest, the oval pieces being for the outside walls, and the circular ones for the partitions. It has been said that she poises herself on her wings in order to avoid tearing the leaf or to hinder her and the piece from falling to the ground when the latter is cut off, but I narrowly watched this one, and in every instance her wings were motionless. As the cutting proceeded, she curled the piece under her, and when the piece was separated both she and it fell downwards for a short distance; then, and not till then, did she open her wings to arrest the downward tendency, and soon recovering herself, mounted upwards with her burden. Sometimes, but not always, she rested on the palings close by, and then, rising upwards, proceeded in a direct line to her nest.—*J. W. Douglas; 6, Kingswood Place, Lee, July* 30, 1858.—*From the 'Intelligencer.'*

Bembidium laterale in the Isle of Wight.—A lepidopterological friend at Bembridge has met with Bembidium (Cillenum) laterale in some abundance running about on the wet sand there, in which it makes little burrows. The Isle of Wight is, I believe, a new locality for the species, although it is well known to occur at Portland. —*George Guyon; Richmond, Surrey, August* 13, 1858.

Capture of Chlænius Schrankii in the Isle of Wight.—On the 31st of July, while looking for insects at Luccombe, I had the good fortune to find nine specimens of Chlænius Schrankii, apparently not long hatched: they were running over the damp green sand half way down the cliff. The day was particularly fine, and heavy rains had recently fallen. On a subsequent visit I could obtain only one; the ground on which I had previously found it had become perfectly dry. It will be remembered that Mr. Bates took one at Luccombe last year.—*George Lewis; 14, Woodlands Terrace, Blackheath, August* 21, 1858.

The Silkworm.—The following facts, just laid before the Academy of Sciences by MM. Decaisne, Peligot and de Quatrefages, members of the committee appointed to investigate the cause of the diseases of the silkworm and seek a remedy for it, are not without interest. These gentlemen, having visited various parts of France, found the mulberry leaves everywhere in excellent condition, so that there is no foundation in the opinion which attributes the disease to bad food. Of all the diseases to which the silkworm is subject, that most frequently met with is known by the name of *pattes noires* or *poivré* in France; M. de Quatrefages proposes to call it the *maladie de la tache*, from the spots which appear on the worm when attacked with it. These spots are often invisible to the naked eye, and can only be perceived with the aid of a magnifying glass; and this circumstance explains why the malady, especially during the present year, escaped the observation of silk-growers in the majority of cases until five or six days after the worm had cast its fourth skin. The spots exist in all the tissues and organs of the worm, and in its subsequent stages of a chrysalis and moth. In the latter the spots destroy the antennæ, the legs, or a portion of the wings. In the beginning the spots appear under the form of a yellowish matter pervading the whole system; this matter gradually becomes darker, and is then concentrated into a number of tubercles, which are the spots in question. That such a diseased state should exercise an influence on the quality of the eggs is not surprising, but to what extent can only be determined by future experience. An infected silkworm may spin its cocoon when the disease is not too far gone, but the insect generally dies, and the body, instead of putrefying, becomes dry and brittle. M. de Quatrefages has tried several methods of cure; first, the hygienic process, which consists in rearing the worms in open sheds instead of close rooms. The leaves of the wild mulberry, not stripped from the branches, he has found very efficacious. He strongly recommends silk-growers to rear small lots of worms apart from the others, solely for the purpose of propagating the species. But, besides these precautionary measures partly recommended by others, he has had recourse to new remedies not hitherto recommended, and has endeavoured to administer various medicines to the worms. From his experiments it appears that the silkworm does not refuse to eat the leaves of the mulberry sprinkled with Peruvian bark, gentian, valerian, mustard, &c., and the two latter powders especially would seem to produce good effects. But scraped sugar appears for the present to be preferable to all other remedies. The worms eat the leaves sprinkled with sugar with extraordinary relish, and the experiments with this substance were accordingly repeated on a larger scale in the estalishment of M. Augliviel, in the department of the Gard, where one of the silk sheds, fitted up for twenty-seven trays, was reduced by disease to four. The worms of these were transferred to another shed, and divided into four lots; the first was fed in the common way, the second with moistened leaves, the third with sugared leaves, and the fourth was subject to a rigorous abstention from food for seventy-five hours, and then fed chiefly with sugared leaves. At the end of twenty-four hours several worms of the latter lot began to spin, and made several small and imperfect cocoons on the tray; the other worms began to shrivel up and diminish in size, but on receiving the sugared leaves they speedily rallied, and many of them spun their cocoons. The worms fed with moistened leaves fared very badly, and very few of them spun cocoons. Those fed in the common way presented nothing remarkable, and yielded a certain quantity of cocoons; but those fed with sugared leaves thrived well and spun their cocoons sooner than the others. The quantities of silk yielded by these four lots were respectively:—1st lot, 210 grammes; 2nd lot, nought; 3rd lot, 392 grammes, and of a superior quality; 4th lot, 152 grammes. Now, when it is considered that such a result was obtained from the use of sugar on worms, the state of which was hopeless, it may reasonably be concluded that its effect will be much more satisfactory in less desperate cases. At all events, one great fact has been put beyond a doubt—viz., that medicine may be administered to silkworms in the same way as it is administered to cattle and poultry.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

August 2, 1858.—J. O. WESTWOOD, Esq., V.P., in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'The Natural History Review' Vol. v. No. 3; presented by the Dublin University Zoological Association. 'The Zoologist' for August; by the Editor. 'A Manual of British Butterflies and Moths,' No. 19; 'The Entomologist's Weekly Intelligencer,' Nos. 93–96; by H. T. Stainton, Esq. 'The Literary Gazette' for July; by the Editor. 'The Journal of the Society of Arts' for July; by the Editor. Four specimens of Laverva phragmitella; by A. F. Sealy, Esq.

Election of a Member.

George Fenning, Esq., of Lloyd's, London, was balloted for and elected a Member of the Society.

Exhibitions.

Mr. Knaggs exhibited a box of beautiful Lepidoptera and other orders of insects from Demerara.

Mr. Waring exhibited a fine male specimen of Notodonta bicolora, a species hitherto unrecorded as British, taken by Mr. Bouchard, in July last, near Killarney.

Mr. Hunter exhibited fine specimens of Trochilium Chrysidiformis and Spilodes palealis, taken near Folkestone.

Dr. Wallace exhibited the following insects, taken in the Isle of Wight this season, *viz.*, Micra ostrina (two specimens), a species hitherto recorded as British on the authority of a single example, taken many years since, by the late Captain Blomer, near Bideford; fine specimens of Spilodes silacealis; a Nola, apparently distinct from the known British species; and a fine series (including both sexes) of Phibalapteryx gemmaria, amongst which, he observed, were specimens similar to those recently recorded in this country as P. fluviata.

Mr. Westwood read a letter from Herr Nietner, received by Mr. Spence, recording the discovery, in Ceylon, of a Strepsipterous insect, parasitic on an ant. Mr. Westwood exhibited drawings, and read a description of the species, drawn up from the mutilated examples which accompanied Herr Nietner's letter, proposing for it the name of Myrmecolax Nietneri.

Mr. Walker read a paper on 'Undescribed Neuroptera in the Collection of W. W. Saunders, Esq.'—*E. S.*

A few Remarks on the Fauna of Amoy.

By Robert Swinhoe, Esq., of H.B.M. Consulate, Amoy.*

I would beg to offer for your consideration a few remarks on the Fauna of the island on which our lot is at present cast; for though Zoology is not much studied as a science, yet we are often willing to learn of the peculiarities and economy of creatures that breathe the same air as ourselves, and are dependent on the same natural resources for existence.

Who has not wondered at the bare hills of Amoy, at the first glimpse he obtains on entering the harbour, and, seeing the great boulders of rock rise one above the other in endless confusion, thought to himself with a shudder, Can animal life be there? But though animal life is there to a small extent, it is to the plains, which are inhabited and cultivated with such care by the natives, that we must look for most that will interest us in our science.

---

* Read before the Literary and Scientific Society of Amoy, November 17, 1857, and communicated by H. Stevenson, Esq.

The wily fox is the first animal which we have to consider, for, low as he stands in the natural series of Mammals, he is here prominent as the largest of the Carnivora we possess; that is to say, if we lay aside the claims of the half-starved Chinese cur, to which the term "wild" might almost in some instances be appropriately applied, and the vague rumours of the migration of tigers from the mainland. The fox, the Hoo-lee of the Court dialect, and the Hill-dog of the Amoy, is found, but not very abundantly, in the vicinity of most of the temples, and I have myself watched it more more than once stealing along noiselessly, with its conspicuous bushy tail hung down, just as the setting sun was withdrawing its last rosy tints from the floating clouds overhead. The low cunning of this animal is too well known amongst us; but I have never heard of any of its signal feats in this part of the world, with the exception of the occasional abduction of a fowl from the villagers, in defiance of the vigilance of the noisy watch-cur. I have had the good fortune to obtain a cub and a full-grown female of this species, and I think I can safely pronounce it to be the same as the European Vulpes vulgaris.

The greatest devastator among the poultry of the poor is an animal belonging to the weasel family (Mustelidæ), and, though generally distributed, is very rarely seen. It measures about a foot and a half in length, has a buff-coloured fur, with a black muzzle, and is the Hwang-shoo-lang of the Pun-ts'aou, and the Chiah-ch'oo (tawny rat) of Amoy men. The havoc it commits amongst domestic fowls is well compensated for by its predilection for rats, which vermin it is said to destroy in large numbers. In the occasional high tides that wash over the bund into the merchants' godowns here, among the numbers of rats that are seen struggling near the surface of the water, driven out of house and home, it is not unusual to see a few of these weasels wriggling their long bodies like snakes to some place of shelter.

Before leaving the Carnaria it would be as well to mention a curious animal that was brought alive to me by a native, and which I kept some months in confinement. It evidently belonged to the civet family (Viverridæ), measured in length one foot and a half, having rather long fur of a dingy brown colour, and a black head with a white line down the snout; the tail was tipped with white. At first I was doubtful whether this might not be some animal brought up by a Singapore junk, and not indigenous to China; but all doubt was removed on that score by my subsequently receiving a skin from Tungan, as a present, from a Chinese friend. It was described in his letter as the Yuh-meen-maou, or gem-faced cat, and he regretted not having been able to send the body in the skin, as this animal is considered quite an epicure's dish. It is described in the Pun-ts‘aou under the name Hwan.

We have also heard certain stories about the sea-otter that is occasionally seen prowling about on the Six Islands, seeking his finny prey at the dead hour of night, and avoiding the light of day; for soon as morning breaks—

> "Consueta petens e fluctibus antra,
> Ibat."

I have at low tide often traced footprints on the sand of some animal into several caves in Koo-lang-soo, and by following up the track have eventually come on small heaps of fish-bones, but the animal that deposits them I have never had a glimpse of.

In the Rodentia we are confined to that horrid group of vermin, rats, there not being sufficient shelter for hares, nor wood enough for squirrels to play their gambols in. The brown rat (*Mus decumanus*) is of course found here, as indeed it is in all parts of the world wheresoever commerce has carried her deeply-laden vessels. M. Cuvier says that "this rat originally came from Persia, where it lives in burrows; and it was not until 1727 that, after an earthquake, it arrived at Astracan, by swimming across the Volga. It did not pass into Europe until the eighteenth century, and is now common in all large cities throughout the world." The musk rat (*Sorex Myosurus*), with a leaden black skin as soft as velvet, Chî-ch‘oó (money rat), a pointed snout and diminutive eyes, is also a common species, but it contents itself with the kitchen and lower parts of a house, and never ventures as high as the upper story. It occurs plentifully in sewers and damp places, and in Chinese dwellings, whence you often hear its sharp shrill cry, which, the Chinese say, sounds not unlike the jingling of money. It is remarkable for its strong musky odour, with which it impregnates almost everything it touches or runs over. True mice I have never seen here, and indeed where their larger brethren are so plentiful I should almost doubt their existence. A water vole (Arvicola) is found in the vicinity of ponds.

The next quadruped, the only representative we possess of the order Edentata, is far the most interesting, on account of the numereous peculiarities both its form and habits present. It is the scaly

22 OC 58

CONTENTS.

PROCEEDINGS OF SOCIETIES.—Northern Entomological Society, 6193. Zoological Society, 6195.

Reason and Instinct, *Rev. J. C. Atkinson, M.A.*, 6196.

Scent, *Rev. Arthur Hussey, M.A.*, 6206.

BIRDS.—A Nest of Montagu's Harrier, *H. Stevenson, Esq.*, 6207. Emberiza nivalis; Note on the Blackbird sucking Eggs, *Murray A. Mathews, Esq.*, 6207, 6208. Is the Red Grouse of Britain really distinct from the Norwegian Willow Grouse? *George Norman, Esq.*, 6209. Occurrence of Baillon's Crake near the Land's End, *Edward Hearle Rodd, Esq.*, 6210. Beautiful Variety of the Garganey Teal, *H. Stevenson, Esq.*, 6210.

REPTILES.—Newt changing its Skin, *George Guyon, Esq.*, 6210.

FISHES.—Occurrence of the Short Sun-fish on the Sussex Coast, *Rev. Arthur Hussey, M.A.*, 6210.

INSECTS.—Polyommatus Artaxerxes and P. Agestis, *H. J. Harding*, 6211. Sound produced by the Larva of Acherontia Atropos, *John Edmund Weatherhead, Esq.*, 6212. Capture of Pieris Daplidice near Rottingdean, *John N. Winter, Esq.*, 6212. Pieris Daplidice; Anthrocera Minos in the West of Scotland; Cossus ligniperda at Sugar, *Intelligencer*, 6212. Two Pupæ in one Cocoon of the Silkworm, *T. Wildman, Esq.*, 6213. Agrotis lucernea, *Sidney Cooper, Esq.*, 6213. New Mode of capturing Nonagria geminipuncta, *W. D. Crotch, Esq.*, 6213. Epione Advenaria, *Edward Newman*, 6213. Botys lancealis, *Murray A. Mathews, Esq.*, 6213. Larva of Chilo gigantellus; Coleophora Leucapennella, *Intelligencer*, 6214. Xysmatodoma argentimaculella; Captures near Bowdon, *R. S. Edleston, Esq.*, 6214. Larvæ of Cemiostoma lotella; A new Mine on Centaurea; The Centaurea jacea Miner; Abundance of Psyche nitidella; Phibalapteryx fluviata and P. gemmaria: are they distinct? *Intelligencer*, 6215, 6216. Retrospective Criticism on Dr. Gray's view of the Cause of the Cells of the Honey-bee being of an hexagonal form, *Thomas Boyd, Esq.*, 6216. Beetles at Home, *Intelligencer*, 6217. Notes and Observations on the Genus Necrophorus, *Frederick Smith, Esq.*, 6217. Megachile centuncularis, *Intelligencer*, 6219. Bembidium laterale in the Isle of Wight, *George Guyon, Esq.*, 6220. Capture of Chlænius Schrankii in the Isle of Wight, *George Lewis, Esq.*

The Silkworm, 6220.

PROCEEDINGS OF SOCIETIES.—Entomological Society, 6221.

A few Remarks on the Fauna of Amoy, *Robert Swinhoe, Esq.*, 6222.

TO CORRESPONDENTS.

Communications by Mr. Bretherton, Mr. Stevenson, Rev. Arthur Hussey, Mr. Dean, Mr. Thomson, &c., unavoidably stand over till next month.

Sphinx Convolvuli is now on the wing, and will continue so throughout the month of September. It frequents the blossoms of Petunias, Verbenas, Marvels of Peru, and red Valerian; these in preference, but all floriferous shrubs and plants should be visited of an evening in quest of it. Can no one obtain the eggs and describe them? —afterwards, the larva, and try it with every leaf in the garden? It would be a grand triumph to raise Convolvuli from the egg.

Occurrence of Sterrha sacraria near London.—Mr. C. G. Barrett is the fortunate captor of a second British specimen of Sterrha sacraria. He will feel obliged to exchangers not to write to him either for the insect or the locality, as he has no intention of parting with the one or communicating the other.—*Edward Newman.*

EDWARD NEWMAN, PRINTER, 9, DEVONSHIRE STREET, BISHOPSGATE, N.E.